UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte BRUCE JOSEPH ROSER

Appeal No. 2006-1335
Application No. 09/888,734

HEARD: August 8, 2006

Before ADAMS, MILLS and GREEN, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 14-16 and 20-22, which are all the claims pending in the application.

Claim 14 is illustrative of the subject matter on appeal and is reproduced below:

14. A method for preparing a stable dried composition of native Factor VIII containing a stabilizing amount of trehalose in the absence of a stabilizing amount of albumin which method comprises freeze-drying an aliquot of aqueous solution of Factor VIII containing trehalose and free of albumin.

The references relied upon by the examiner are:

Bhattacharva et al. (Bhattacharva)	5,288,853	Feb. 22, 1994
Livesey et al. (Livesey)	5,364,756	Nov. 15, 1994
Curtis et al. (Curtis)	5,824,780	Oct. 20, 1998

GROUND OF REJECTION

Claims 14-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Curtis and Livesey.

Claims 14-16 and 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Curtis, Livesey and Bhattacharva.

We reverse.

DISCUSSION

The combination of Curtis , and Livesey:

According to the examiner (Answer, page 3), Curtis describes a process of producing a stabilized preparation of activated Factor VIII[1] that is free of albumin. In this regard, the examiner finds that Curtis teaches the use of trehalose, as an alternative to albumin, to stabilize the activated Factor VIII in the preparation. Id. The examiner also finds, that Curtis teaches that the preparation of stabilized activated Factor VIII can be lyophilized for storage. Answer, bridging paragraph, pages 3-4. The examiner recognizes, however, that Curtis differs from appellant's claimed invention "by failing to describe the lyophilization of native Factor VIII." Answer, page 4.

[1] Curtis discloses the use of Factor VIII obtained from human plasma or from recombinant sources. Column 2, lines 55-63.

The examiner relies on Livesey to make up for the deficiency in Curtis. According to the examiner, Livesey "provides motivation for lyophilizing 'native' Factor VIII in trehalose without albumin by not only claiming a specific embodiment (claim 17) of lyophilizing Factor VIII[2], but also disclosing [(column 9, lines 16-24)] that trehalose, and not albumin, is one of a number of agents particularly suited to dry preservation of macromolecules such as proteins."[3] Answer, page 4.

Based on this evidence, the examiner concludes (Answer, page 5),

> the artisan of ordinary skill seeking to preserve the "native" Factor VIII encompassed by Livesey's claim 17, recognizing that Factor VIII is a protein, clearly would have looked to trehalose instead of albumin, based on Livesey's disclosure that trehalose is one of a number of agents particularly suited for protein protection in freeze-drying procedures, and albumin is not. Additional motivation for freeze-drying Factor VIII using trehalose in the absence of albumin would have been derived from the fact that the lone example of protein freeze-drying of Livesey, Example 5 at columns 23 and 24, demonstrates that the integrity of a protein containing viral vaccine is adequately protected by trehalose in buffer with no other preservative agents.

Appellant does not dispute that Curtis teaches "a method for preparing a purified and stable activated Factor VIII." Brief, page 6. Appellant argues, however, "any teaching regarding how activated Factor VIII might be stabilized

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[2] For clarity, we note that Livesey's specification and claim 17, refer to Factor VIII without reference to whether this blood factor is in its native or activated form. As we understand the examiner's argument, the examiner has interpreted this reference to Factor VIII as a generic reference to both the native and activated forms of Factor VIII.

[3] For the reasons that follow, we disagree with the examiner's interpretation of this disclosure of Livesey.

when freeze-dried is irrelevant to the behavior of native Factor VIII."[4] Id. In this regard, appellant points out that Curtis does not teach a freeze-dried preparation of native Factor VIII as required by appellant's claimed invention. Brief, page 5. With reference to the Helgerson and Tuddenham Declarations, appellant asserts that there are "considerable differences in characteristics and behavior between native and activated Factor VIII." Brief, bridging paragraph, pages 6-7. Upon consideration of the Helgerson Declaration and the Tuddenham Declaration, we find that both Declarations assert that one of ordinary skill in the art would not have a reasonable expectation of success in extrapolating the methodology applied to activated Factor VIII to the native form of Factor VIII. See e.g., Tuddenham Declaration, paragraphs 5-6; and Helgerson Declaration, paragraph 3.

In this regard, we note that Helgerson, a co-inventor on the Curtis patent, declares (paragraph 3), the work related to the Curtis patent was limited to the activated form of Factor III. According to Helgerson (id.), "[b]ecause the two protein forms are so different from one another, the attributes of, uses of, and techniques involving one may not simply extrapolated [sic] to the other." In our opinion, this is compelling insight into what a person of ordinary skill in the art would have gleaned form the disclosure of the Curtis patent.

The examiner attempts to refute the testimony set forth in the Tuddenham and Helgerson Declarations by asserting (Answer, bridging paragraph, pages 9-

[4] We recognize appellant's argument regarding the preparation of a composition that is stable without the need for refrigeration. Brief, page 6. There is, however, no specific temperature requirement in any of appellant's claims. Accordingly, we are not persuaded by this argument.

10), "[t]he fact that trehalose can be used to preserve both native and activated factor VIII demonstrates that trehalose is recognized by the art as being a cryoprotectant suitable in a number of varied applications." In this regard, we agree with Helgerson (Declaration, paragraph 3), that the examiner has overstepped the evidence on this record. While it is undisputed that Curtis discloses a method for preparing a purified and stable activated Factor VIII, as appellant points out - the evidence with regard to Livesey is not as persuasive as the examiner makes it out. According to appellant (Reply Brief, page 4), "Livesey does not teach the reader that trehalose, on its own and without albumin, can be used to stabilize Factor VIII." In this regard, we note the examiner's reliance on claim 17, and column 9, lines16-24 of Livesey to teach that the biological material comprises Factor VIII.[5] Answer, page 4. Claim 17 depends directly from claim 1 – but claim 1 does not limit the "cyroprotectant" to be used. In this regard, we direct the examiner's attention to Livesey's claim 8, which depends ultimately from claim 1 and further limits the cyroprotectant to "a vitrification solution comprising a mixture of" various chemicals. Thus, consistent with Livesey's specification, the cyroprotectants are contemplated to be used "alone or in combination with other cyroprotectants or with additional components. . . " (Livesey, column 9, lines 33-34) including albumin (Livesey, column 9, lines 5-15).

[5] Interestingly enough, the examiner does not address what is encompassed by the term "comprises" as it appears in claim 17 of Livesey, which opens the claim to the inclusion of other components including e.g., albumin. In addition, we note that the only other disclosure of Factor VIII in Livesey appears at column 4, lines 57-64, wherein Livesey discloses that "[t]he present

As we understand Livesey, the reference does not disclose or suggest that trehalose by itself can be used stabilize or preserve native Factor VIII, instead Livesey discloses (column 4, lines 5-9), "[b]y the proper selection of cryoprotective agents and the use of preselected drying parameters, almost any biological sample in suspension can be cryoprepared for a suitable desired end use." In this regard, we note that Livesey discloses (column 9, lines 5-11), "[v]arious cryoprotectants can be used in the present invention. These include . . . trehalose . . . human serum albumin and combinations thereof."

Therefore, contrary to the examiner's assertions, the evidence of record does not paint as clear a picture as the examiner would have us believe. To establish a prima facie case of obviousness, there must be both some suggestion or motivation to modify the references or combine reference teachings and a reasonable expectation of success. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). The evidence on this record leads us to conclude that in method such as that set forth appellants' claimed invention a person of ordinary skill in the art would not have reasonably expected that trehalose, in the absence of albumin, would have stabilized native Factor VIII.

For the foregoing reasons we reverse the rejection of claims 14-16 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Curtis and Livesey.

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invention can be used to preserve many different types of biological materials. It is anticipated that the method can be used to preserve materials such as . . . Factor VIII . . . ."

The combination of Curtis, Livesey and Bhattacharva:

The examiner relies on the combination of Curtis and Livesey as set forth above. According to the examiner, the combination of Curtis and Livesey does not teach the subject matter of claims 20, 21 and 22, which depend from claims 14, 15 and 16 respectively. To make up for this deficiency the examiner relies on Bhattacharva.

Appellant does not dispute the examiner's findings with regard to Bhattacharva. Instead, appellants assert (Brief, page 19), "[t]he rejection on this basis is believed in error for the same reasons as those set forth above with regard to [the combination of] Curtis and Livesey . . . ." We agree.

The examiner relies on Bhattacharva to teach "that histidine is a preferred buffer for use in Factor VIII preparations to be lyophilized." Answer, page 6. In our opinion, Bhattacharva fails to make up for the deficiency in the combination of Curtis and Livesey as discussed above. Accordingly, we reverse the rejection of claims 14-16 and 20-22 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Curtis, Livesey and Bhattacharva.

SUMMARY

The rejections of record are reverse.

REVERSED

Donald E. Adams
Administrative Patent Judge

Demetra J. Mills
Administrative Patent Judge

Lora M. Green
Administrative Patent Judge

BOARD OF PATENT APPEALS AND INTERFERENCES

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